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Head Injuries and the NFL, Part 2: A History of Terms – CTE and Concussion

By: John Medina | Posted: June 20, 2012



The history of research into the relationship between head injuries and contact sports starts not with football, but with boxing.

Clinicians noticed as early as the 1920s that repetitive brain trauma associated with the “sweet science” could lead to a remarkably predictable cluster of not-so-sweet symptoms. First termed “punch drunk” in 1928, then later, in 1937, *dementia pugilistica*, these symptoms appeared to arise from repeated sublethal blows to the head.

Eventually, the cluster of symptoms became known as CTE, short for the tongue-twisting *chronic traumatic encephalopathy*, its current name.

CTE is a progressive neurodegenerative disease caused by repetitive injury to the head. Well, *maybe* repetitive — there is on record an incidence of CTE caused by a single blow to the head, which is a terrific example of how much controversy surrounds this line of research. What you can safely say is that repeated blows to the head place people at greater risk for developing the disorder than those who don’t receive such injuries. CTE and its relationship with American football are what we are studying in this series.

Many people unfortunately confuse CTE with its more famous cousin, the concussion, which these days is also being called a) traumatic brain injury, (TBI), b) minor head trauma (MHT), or c) mild traumatic brain injury (mTBI). To understand the data concerning NFL players, it is important to know how concussion, whatever you call it, differs from CTE.

Concussion literally means to “hit together,” or “to shake vigorously.” Though the word is conceptually interchangeable with MBI, MHT, or MTBI, concussion is usually reserved to describe sports injuries, and the alphabet trio is usually used to describe everything else. It is easily the most common neurologic disorder reported by clinics, representing almost 90% of all brain injuries in the United States.

Most researchers agree that a concussion is a temporary functional impairment caused by a blow — direct or indirect — to the skull. The injury heals by itself over time and is not accompanied by any detectable neurological damage. You might be surprised to know researchers don’t agree about much else. There are disputes about what “impairment” means — or for that matter, what “temporary” means. Some researchers say that if acute symptoms such as headache, dizziness, fatigue, and slurred speech don’t stop after three months, you can drop the word “acute” from the description. The patient is now said to suffer from post-concussive syndrome — PCS — which also has a variable timeline. Many researchers believe that if you don’t recover from PCS after a year, you have something much more serious. Of course, just as many say there is no linear progression from concussion to

PCS to “something more serious.”

Just to make matters worse, a surprising number of classification systems have been proposed to describe concussions and PCS, ostensibly to settle things down, which unfortunately has had the opposite effect. Shown below is one of the most famous schemes, which we will use throughout this series. It divides concussions into three grades based on the severity of symptoms.

Grade I Concussion

Evident cognitive confusion, transient memory loss, generally lasting *less than* 15 minutes. No loss of consciousness.

Grade II Concussion

Evident cognitive confusion, generally lasting *more than* 15 minutes. No loss of consciousness.

Grade III Concussion

Loss of consciousness.

But, like I said, some of the details are disputed. Other classifications use 30 minutes and not 15 minutes in their Grade Is; some schemes put unconsciousness in their Grade IIs, and not their Grade IIIs. To date, there is no universal consensus on exactly how to classify concussions.

And now a note from the legal team here at Brainstorm.

None of the facts in this blog are to be considered diagnostic, confusing as they might be, nor should they be used for anything other than educational purposes. That includes the concussion stages described above. Have you had an injury, or know someone who has? There are great resources out there serving the more clinical purpose quite well. One of the least confusing descriptions (it is actually quite excellent) is [this one](#), which comes from the [American Academy of Neurology](#). If you suspect an injury, this is a great first resource to consult.

As we shall observe, CTE is a very different animal from a concussion, whatever naming scheme you prefer. The effects of CTE are insidious, long-lasting, and lead to very different clinical outcomes than your isolated bonk on the head. We shall talk all about this monster, and begin a general discussion about the physics of closed-head injuries, in our next installment.